

FCC RF Exposure Report

FCC ID : I88NBG6818
Equipment : AC2600 Multi-Gigabit Security WiFi Router
Model No. : NBG6818
Brand Name : ZYXEL
Applicant : Zyxel Communications Corporation
Address : No.2 Industry East RD. IX, Hsinchu Science
Park, Hsinchu 30075, Taiwan, R.O.C
Standard : 47 CFR FCC Part 2.1091
Received Date : Sep. 23, 2019
Tested Date : Oct. 19 ~ Nov. 14, 2019

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by:


Along Chen / Assistant Manager

Approved by:


Gary Chang / Manager



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Release Record

Report No.	Version	Description	Issued Date
FA992302	Rev. 01	Initial issue	Jan. 07, 2020

1 MPE EVALUATION OF MOBILE DEVICES

1.1 LIMITS FOR GENERAL POPULATION/UNCONTROLLED EXPOSURE

Frequency Range (MHz)	Power Density (mW /cm ²)	Averaging Time (minutes)
300~1500	F/1500	30
1500~100000	1.0	30

1.2 MPE EVALUATION FORMULA

$$Pd = \frac{Pt}{4 * Pi * R^2}$$

Where

Pd= Power density in mW/cm²

Pt= EIRP in mW

Pi= 3.1416

R= Measurement distance

1.3 DEVIATION FROM TEST STANDARD AND MEASUREMENT PROCEDURE

None

1.4 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Parameters	Uncertainty
Conducted power	±0.808 dB

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1.5 MPE EVALUATION RESULTS

Non-beamforming mode / Wi-Fi

Frequency Range (MHz)	Maximum Conducted Power (dBm)	Rated Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Ratio*	Pass / Fail
2412~2462	29.36	29.5	0	20	0.177	1	0.177	Pass
5180~5240	25.87	26	3	20	0.158	1	0.158	Pass
5190~5230	27.66	28	0	20	0.126	1	0.126	Pass
5210	20.14	20.5	0	20	0.022	1	0.022	Pass
5745~5825	29.22	29.5	3	20	0.354	1	0.354	Pass
5755~5795	29.21	29.5	0	20	0.177	1	0.177	Pass
5755	26.60	27.0	0	20	0.100	1	0.100	Pass

*Ratio = Power density / Limit.

**For 20-MHz channel widths with $N_{ANT} \geq 5$

Array Gain = $5 \log(8/1) = 4.52$ dB or 3 dB, whichever is less

Bluetooth

Frequency Range (MHz)	Maximum Conducted Power (dBm)	Rated Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Ratio*	Pass / Fail
2402-2480	2.89	3	4	20	0.001	1	0.001	Pass
2402-2480	2.76	3	4	20	0.001	1	0.001	Pass

*Ratio = Power density / Limit.

Beamforming mode/ Wi-Fi

Frequency Range (MHz)	Maximum Conducted Power (dBm)	Rated Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Ratio*	Pass / Fail
2412~2462	22.94	23	6.02	20	0.159	1	0.159	Pass
5180~5240	16.77	17	9.03	20	0.080	1	0.080	Pass
5190~5230	18.63	19	9.03	20	0.126	1	0.126	Pass
5210	11.11	11.5	9.03	20	0.022	1	0.022	Pass
5745~5825	20.19	20.5	9.03	20	0.179	1	0.179	Pass
5755~5795	20.18	20.5	9.03	20	0.179	1	0.179	Pass
5755	17.57	18.0	9.03	20	0.100	1	0.100	Pass

*Ratio = Power density / Limit.

Note:

Directional gain of 2.4 GHz = 0 dBi + $10 \log(4/1) = 6.02$ dBi

Directional gain of 5 GHz = 0 dBi + $10 \log(8/1) = 9.03$ dBi

1.6 MPE EVALUATION OF SIMULTANEOUS TRANSMISSION

Non-beamforming mode

Mode	Max Ratio of Each Mode
Wi-Fi 2.4 GHz	0.177
Wi-Fi 5 GHz	0.354
BT	0.001
Sum (Wi-Fi 2.4 GHz+ Wi-Fi 5GHz+ BT)	0.532
Limit	1
Pass / Fail	Pass

Beamforming mode

Mode	Max Ratio of Each Mode
Wi-Fi 2.4 GHz	0.159
Wi-Fi 5 GHz	0.179
BT	0.001
Sum (Wi-Fi 2.4 GHz+ Wi-Fi 5GHz+ BT)	0.339
Limit	1
Pass / Fail	Pass

2 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website <http://www.icertifi.com.tw>.

Linkou

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No. 30-2, Ding Fwu Tsuen, Lin
Kou District, New Taipei City,
Taiwan, R.O.C.

Kwei Shan

Tel: 886-3-271-8666

No. 3-1, Lane 6, Wen San 3rd St.,
Kwei Shan District, Tao Yuan City
333, Taiwan, R.O.C.

Kwei Shan Site II

Tel: 886-3-271-8640

No. 14-1, Lane 19, Wen San 3rd
St., Kwei Shan District, Tao Yuan
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If you have any suggestion, please feel free to contact us as below information

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